delay may have led to the presentation of a better and more complete plan. The details of the scheme would be too long for us to give; but the result will be to provide an excellent new building extending for 190 feet along Corn Exchange Street, in continuation of the east front of the present buildings for physiology and comparative anatomy, and occupying the whole distance between them and the Corn Exchange. Besides rooms for teachers and demonstrators, aquaria, and preparation-rooms, there will be a new class-room in which 140 additional students for histology can be accommodated. There will be a demonstration-room in which about fifty students at a time can be shown experiments which now have to be omitted owing to the want of such a room. By rearrangement of rooms additional accommodation will be given to chemical physiology and to research, while rooms will be available for advanced students to work without interruption from the elementary classes.

The new lecture-room will be in the middle block, between the anatomical and physiological buildings; internally it is to measure 40 by 45 feet, by 25 feet high to the wall-plate, above which will be an open queen-post trussed roof, with sky-lights in the sides. There will also be a large window in the east gable. This lecture-room will accommodate 240 students, for more than which number it is not yet considered necessary to provide; although if the school continues to expand till it reaches the dimensions of the Edinburgh School, which is not impossible, a still larger lecture-room will ultimately be required. But the present proposal will give a room far superior to the room now in use, both for anatomy and physiology.

The northern block, for human anatomy, has about 70 feet of frontage, and contains, in addition to offices, Professor's and articulating-rooms, &c., a museum 40 feet by 60, lighted by windows in three walls, and 17 feet high, admitting of the construction of a gallery. Above the museum is a dissecting-room of rather larger area, well lighted.

The estimated cost is, for physiology, £4755; lecture-room, £3338; human anatomy, £5872: total, £13,965. The report and plans are to be discussed on Saturday next, and we hope they will be promptly carried out, as the anatomical buildings at present in use are painfully inadequate, and physiology is also urgently in need of better accommodation.

NOTES.

THE subject of the Croonian Lecture to be delivered before the Royal Society during the present year will be "Preventive Inoculation." The lecture will be delivered by M. Roux, and will be founded on observations made in the Pasteur Institute. It is hoped that M. Pasteur will be present at the lecture.

MR. EADWARD MUYBRIDGE, of Philadelphia, who by arrangement with the Managers of the Royal Institution had agreed to give a discourse after Easter on "The Science of Animal Locomotion in its Relation to Design in Art" (illustrated by the zoopraxiscope), a subject of great novelty and interest, has kindly consented to deliver it on Friday evening, the 22nd instant, Dr. Edgar Crookshank being compelled, through illness, to defer his discourse on "Microbes," which was to have been delivered on that evening.

To meet the expressed wish of the members, the Council of the Mineralogical Society has resolved that two additional general meetings shall be held in London during the current year; the first has been fixed for Tuesday, March 12, and the other for Tuesday, June 25. The general meetings still to be held in London during the year will thus be on the following Tuesdays: March 12, May 7, June 25, November 5 (anniversary). The meetings will be held on the premises of the Geological Society, Burlington House, Piccadilly, at 8 p.m.

ON Monday, March 11, Mr. William Jago will begin, at the City and Guilds of London Institute, a course of ten lectures on "Bread-making." The lectures will be delivered on Monday and Thursday evenings at 7.30. The special object of the course is to give, in the simplest possible manner, instruction to practical working bakers as to the nature of the changes which occur during the manufacture of bread.

IN spite of the enthusiasm evoked in Norway by the success of the Nansen Expedition, the national subscription opened to defray the cost has been but poorly responded to. In consequence, Herr Gamél, of Copenhagen, whose munificence enabled the Expedition to start at all, has offered to contribute the balance wanting.

WE regret to have to record the death of the Rev. John George Wood, author of "Common Objects of the Sea-shore" and many other popular works on natural history. He died on Sunday, while on a visit to Coventry, from an attack of peritonitis. Mr. Wood was in his sixty-second year.

THE death is announced of Dr. Johannes Brock, lately Professor of Zoology at Dorpat University. He was well known by his scientific journey to the Indian Archipelago, undertaken with the pecuniary help of the Berlin Academy. He died at Göttingen, where he had been appointed Professor of Natural Science.

DR. J. SOYKA, Professor at the German University at Prague, and formerly at the University of Munich, shot himself during a fit of melancholia, on February 23. He was the author of works on Bacteria.

LAST week, in answer to a question put by Mr. Mundella, with regard to the aid to be granted by the Government to provincial Colleges, the Chancellor of the Exchequer made the following statement:—"A vote for provincial Colleges has been put down in the Estimates for 1889-90. The Government have found considerable difficulty in deciding what Colleges should be entitled to share in it, and in what proportions and on what conditions it should be distributed between them. They have accordingly appointed a small Committee to make particular inquiries and advise them on these points. The Committee will sit at an early date, and its deliberations are not likely to be prolonged. Upon receiving its report the Government will settle the scheme of distribution. The sum voted will, of course, be available for the Colleges which are entitled to share in it during the coming financial year."

THE Owens College is one of the Manchester institutions which benefit by the will of the late Mr. John Rylands. He has bequeathed to it £10,000.

SOME time ago the Coast Fishing Section of the German Fisheries Society established a zoological station at Ditzum, on the Dollart, where researches on the fauna of the German Ocean were carried on during the summer months. The Society are now making arrangements to keep the station open during the whole year.

A BIOLOGICAL STATION, chiefly for the promotion of the fisheries, is to be established in Denmark, at a cost of £2000, with a yearly subsidy of £480.

THE Fisheries Exhibition which has just been opened in St. Petersburg is the first Exhibition of this kind that has been held there. It will remain open till the end of April.

ON February 20, about 10 p.m., a remarkably brilliant meteor was seen in and around Stavanger, on the west coast of Norway. It radiated in the south-east, and, going in a westerly direction, burst about 35° above the horizon, without any detonation, but leaving a long trail behind. Its light was a dazzling white.

On January 22, about 2 a.m., an earthquake shock was felt at Hönefos, in Central Norway. This was followed by another, and by a few more at intervals, but faint in character.

A NUMBER of houses were destroyed by the earthquake that occurred at Fleurier, in the Jura Mountains, on February 13 last.

In the *American Meteorological Journal* for December last, General Greely, Chief Signal Officer, contributes an interesting article on "Average Velocities of Low-area Storms and Upper Air Currents in the United States." The author shows that the decrease in velocity of the former is regular and unbroken from February to June, and that the increase is nearly as regular to February again. He expresses the important opinion that the average movement of low-area storms in the United States bears a definite relation to the velocity of upper air currents; and in support of this, a chart is given showing a remarkable accord between the mean hourly velocity of low-area storms and the mean velocity of the upper air currents from 1881–87. Prof. M. W. Harrington contributes a useful article in the shape of a translation of a simple demonstration of the deflection of horizontal motion due to the earth's rotation, from Dr. Günther's "Lehrbuch der Geophysik," without the use of higher mathematics. In the January number, Mr. A. L. Rotch gives a very complete account of the organization of the meteorological service in France since the first establishment of weather telegraphs by Leverrier at the Paris Observatory in 1856, together with descriptions of the instruments and methods now employed. Since 1887 the meteorological service has been separated from the astronomical work, and has been under the able direction of Prof. E. Mascart. The observing-station of the Central Office is the Parc St. Maur Observatory, nearly ten miles south-east of Paris.

In the latest Report of the Bombay Chamber of Commerce, it is stated that it was decided by the Government last May to abolish the office of Meteorological Reporter of Western India, and substitute for it that of Reporter at a reduced salary, who would work under and through the Meteorological Office at Simla. The Chamber, thinking that this alteration would be detrimental to the shipping in the port by stopping the system of storm-warnings that had been carried on for some years, petitioned the Government against the proposed change, and advocated the establishment of additional coast and inland signal stations to aid in the daily forecasts. The Chamber also pointed out in its petition that its members have, for a number of years, printed bi-weekly weather reports, which were indispensable in the absence of a Government daily weather chart and report. The Superintendent of the Meteorological Department of the Government of India was sent to Bombay to make inquiries, but his visit only resulted in the closing of the office in the month of August. Since that time the head of the Telegraph Department has superintended the forecasts. The scheme now about to be tried is that, in consideration of a small monthly payment by the Chamber of Commerce and the Port Trust, a daily telegraphic weather report chart and storm warnings and a bi-weekly crop report will be supplied to each member of the Chamber.

Mr. R. Andree has lately been collecting information as to the use of signals by primitive peoples, and the facts he has brought together—summarized in *Science*—are interesting and suggestive. American Indians use rising smoke to give signals to distant friends. A small fire is started, and, as soon as it burns fairly well, grass and leaves are heaped on the top of it. Thus a large column of steam and smoke rises. By covering the fire with a blanket, the Indians interrupt the rising of the smoke at regular intervals, and the successive clouds are used for conveying messages. Recently, attention has been called to the elaborate system of drum-signals used by the Cameroon negroes, by means of which long messages are sent from village to village. Explorations in the Congo basin have shown that this system prevails throughout Central Africa. The Bakuba use large wooden drums, on which different tones are produced by two drum-sticks. Sometimes the natives "converse" in this way for hours; and, from the energy displayed by the drummers, and the rapidity of the successive blows, it seemed that the conversation was very animated. The Galla south of Abyssinia have drums stationed at certain points of the roads leading to the neighbouring States. Special watchmen are appointed, who have to beat the drum on the approach of enemies. Cecchi, who observed this custom, designates it as a "system of telegraphs." The same use of drums is found in New Guinea. From the rhythm and rapidity of the blows, the natives know at once whether an attack, a death, or a festival is announced. The same tribes use columns of smoke or (at night) fires to convey messages to distant friends. The latter are also used in Australia. Columns of smoke of different forms are used for signals by the inhabitants of Cape York and the neighbouring island. In Victoria, hollow trees are filled with fresh leaves, which are lighted. The signals thus made are understood by friends. In Eastern Australia, the movements of a traveller were made known by columns of smoke, and so was the discovery of a whale in Portland Bay.

A VERY important series of vapour-density determinations have been made by M. Alphonse Combes, which appear to decide the much-discussed question of the valency of aluminium. It will be remembered that a few months ago, as noticed in these columns (vol. xxxviii. p. 624), Profs. Nilson and Pettersson, of Stockholm, published the results of a most conclusive series of experiments upon chromic chloride, showing that at the lowest available temperature the density of the chloride corresponds so closely to the formula $CrCl_3$, as to preclude the possibility of the existence of molecules of Cr_2Cl_6 in the gaseous state. This decisive result in the case of chromium, following as it did after the experiments of Prof. Victor Meyer and Dr. Grünewald upon ferric chloride, which also resulted in showing that the formula $FeCl_3$ represented the only stable molecular condition, appeared to indicate that the metals of this group are really triads, and that the double formulæ Cr_2Cl_6 and Fe_2Cl_6 must be abandoned. This conclusion was further strengthened by the fact that still earlier determinations of the vapour-densities of the chlorides of indium and gallium by Prof. Meyer, Profs. Nilson and Pettersson, and M. Friedel, had yielded conclusive results, pointing to the formulæ $InCl_3$ and $GaCl_3$. In the case of aluminium, however, the evidence has been by no means so decisive. As shown by Dr. Young, in an admirable *résumé* of all the experimental data bearing upon this question in NATURE (vol. xxxix. p. 198), determinations of the vapour-density of aluminium chloride by Profs. Nilson and Pettersson showed that from 440° C. the density gradually diminished, until at about 800° it arrived at the value corresponding to $AlCl_3$, and then remained constant for about 200°, until, in fact, it began to break up with liberation of free chlorine. On the other hand, Messrs. Friedel and Crafts, in a beautifully graduated series of experiments, found that at 218°, 31° above the boiling-point, the density corresponded almost exactly to the formula Al_2Cl_6, and remained practically constant to 400°. More recently, Messrs. Roux and Louïse have found that, at temperatures near their boiling-points, methide and ethide of aluminium possess densities corresponding to the formulæ $Al_2(CH_3)_6$ and $Al_2(C_2H_5)_6$; these values, however, do not remain constant for any sufficient interval of temperature, and so are by no means conclusive. At this interesting moment M. Combes brings forward his experiments upon a new compound, acetyl acetonate of aluminium, $[Al(C_5H_7O_2)_3]_n$, a substance readily obtained perfectly pure as a white crystalline solid, melting at 193°–194°, and vaporizing unchanged at 314°–315°. Two consecutive density determinations by Victor Meyer's method in an atmosphere of nitrogen and at the temperature of boiling mercury, which is only 45° above the boiling-point of the substance, yielded numbers corresponding to the molecular weights 325·5 and 324·2. The molecular weight of $Al(C_5H_7O_2)_3$ is 324·5 ; so that, even at this comparatively low temperature, just as in the case of chromium chloride, the triad is the only possible formula. There was no trace of decomposition, the pure white crystals being found re-formed and chemically unchanged after the experiment. From this result it appears pretty conclusive that aluminium does behave like chromium, iron, indium, and gallium, and that, although in the case of the chloride, molecules of the composition Al_2Cl_6 may for a brief space exist, yet the most stable molecules of aluminium compounds in general are those in which the metal plays the part of a triad.

IN some notes on a voyage to the Greenland Sea in 1888, published in the *Zoologist* for March, Mr. Robert Gray gives some curious particulars with regard to the contents of the stomachs of several hooded seals, *Cystophora cristata*, shot on July 9. While most were empty, one was packed full with a bluish mud or ooze, in which were embedded the crystalline lenses of two eyes belonging probably to some small species of fish, and the remains of one Crustacean common at the surface (*Themisto*). The stomachs of three other seals contained mud alone. "With regard to the presence of mud in these animals' stomachs," says Mr. Gray, "while considering the depth of the water too great (in this instance 200 fathoms; in another, 1100) to permit the bottom being reached, the only explanation I am able to offer is that the substance must be swallowed in small quantities by the seals along with their ordinary food (Crustaceans living at the surface), and that, owing to its indigestible nature, it accumulates in course of time in the stomach. These seals are occasionally observed disappearing under the ice, for the purpose, I believe, of feeding on the immense number of Crustaceans which are known to accumulate there. Many of the ice-fields bear on their surface, immediately under a superficial coating of snow, cargoes of mud (apparently of an alluvial origin). During the process of melting, the mud may accumulate on submerged tongues or ledges of the ice, and thus become the retreat of numbers of Crustaceans, which, as they are devoured by the seals, are swallowed along with a small quantity of the mud. Some such explanation must, I think, be conceived."

A PAPER on the occurrence of Pallas's sand-grouse (*Syrrhaptes paradoxus*) in Ireland was read some time ago before the Royal Dublin Society, by Dr. Robert Scharff, and has now been printed. The immigrations of the bird began in Ireland at the end of May and lasted to the middle of July, when they ceased until the end of November. It is difficult to say, with any degree of accuracy, how many specimens found their way to Ireland ; but Dr. Scharff thinks that in the various flocks which were seen there may have been about one hundred birds. A far larger number, however, may not have been observed. "Following their instinctive desire to explore the extreme west," says Dr. Scharff, "hundreds may have perished in the waves of the Atlantic, thus putting a stop to their enterprising spirit."

AN interesting paper on the Coreans was read lately by Mrs. E. R. Scidmore, an American lady who, in 1887, visited, as a guest, Judge Denny, the foreign adviser to the King of Corea. Wisps of straw and bits of cloth hang at the doorways to keep off evil spirits ; and these, according to Mrs. Scidmore, are the only signs of worship seen about Seoul. The Coreans have the worship of ancestors, as the Chinese ; and a trace of the old dragon-worship must order their toleration of snakes, as it is impossible to get a Corean servant to kill the snakes that drop from the mud roof and slip out of the flues of the kaugs that warm the floors of the houses. Until the arrival of the American physicians, the king and queen had an army of necromancers and wizards in attendance upon them, and a form of Shamanism was practised upon the sick. They were consulted also in matters of State policy.

A SUPPLEMENT to the first volume of the *Internationales Archiv für Ethnographie* has been issued. It consists of a careful and interesting monograph, by Dr. Otto Stoll, on the ethnology of the Indian tribes of Guatemala. He has much that is valuable and interesting to say about the social organization of these tribes, their religious ideas and customs, and their skill in various industrial arts. Two admirably coloured plates accompany the essay, and three illustrations are given in the text.

THE January and February numbers of *Mathesis*, a Belgian mathematical journal, have just been issued as a single number of seventy pages, which are wholly taken up with a French translation of the "supplementary chapter" of Dr. Casey's "Sequel to Euclid" (pp. 165–248, fifth edition). With the double part the editors present a copy of M. Vigarié's useful "Premier Inventaire de la Géométrie du Triangle," to which we lately drew attention.

THE proprietors of the Castle Mail steamers have issued a guide "to the land of gold and diamonds, and the places touched at by their various steamers." The book is called "South Africa, and how to reach it by the Castle Line." The author is Mr. Edward P. Mathers.

THE additions to the Zoological Society's Gardens during the past week include a Rhesus Monkey (*Macacus rhesus* ♀) from India, presented by Miss L. C. Hart ; a Grey Ichneumon (*Herpestes griseus*) from India, presented by Mrs. Margaret Allison ; an American Black Bear (*Ursus americanus* ♂) from North America, presented by Messrs. Hugh Williams and Basevi, Lieutenants R.N. ; a Common Fox (*Canis vulpes*), British, presented by the Lord Tredegar ; a Short-eared Owl (*Asio brachyotus*), captured at sea, presented by Mr. R. Phillips ; a Common Blue Bird (*Sialia wilsoni*) from North America, presented by Commander W. M. Latham, R.N. ; an Axolotl (*Siredon mexicanus*) from Mexico, presented by Mr. E. Evelyn Barron ; nine Moorish Geckos (*Tarentola mauritanica*) from the South of France, presented by Masters F. and O. Warburg ; a Manatee (*Manatus australis*) from Guiana, deposited ; two Tui Parrakeets (*Brotogerys tui*) from Brazil, four White-breasted Gallinules (*Gallinula phœnicura*) from India, purchased ; an Unarmed Trionyx (*Trionyx muticus*) from North America, received in exchange.

OUR ASTRONOMICAL COLUMN.

SOLAR ACTIVITY IN 1888.–The behaviour of the various orders of solar phenomena, spots, faculæ, and prominences, during the past year has shown most conclusively that the minimum must now be very near at hand, and it may with confidence be expected to fall either towards the end of the current year or else early in 1890. The spots especially have shown unmistakable signs that the trough of the eleven-year curve is nearly reached, for they have been few in number, small in size, and low in latitude, and there have frequently been considerable intervals in which no spots have been seen at all. The remarkable depression of October 31 to December 9, 1886 (see NATURE, vol. xxxv. p. 445) has in some respects indeed not been equalled during 1888, but there has been no such long period of unbroken quiescence since the minimum of 1879 as that recorded in last October, when in the three weeks October 4–24 not a single spot was seen, whilst there were but three days showing spots in the thirty-seven from September 29 to November 5. Other spotless or nearly spotless periods in 1888 were January 23–30, February 4–17, March 1–8, March 24–31, April 6–15, April 30 to May 10,